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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/855,255	05/15/2001	Brent W. Edwards	RXSD 1008-1	8977
22470	7590	07/12/2005	EXAMINER	
HAYNES BEFFEL & WOLFELD LLP P O BOX 366 HALF MOON BAY, CA 94019			PHAM, TUAN	
			ART UNIT	PAPER NUMBER
			2643	

DATE MAILED: 07/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/855,255

Applicant(s)

EDWARDS ET AL.

Examiner

TUAN A. PHAM

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22-4-2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-46 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 13-25, 27-28, 31-42, and 46 is/are allowed.
- 6) ☒ Claim(s) 1-12, 26, 29 and 30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments, see Applicant's remark, filed on 11/05/04, with respect to the rejection(s) of claim(s) 1-46 under 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Park (U.S. Patent No.: 6,594,359) and Shennib (U.S. Patent No.: 5,197,332).

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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3. Claims 1, 5-12, 26 and 29-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Park (U.S. Patent No.: 6,594,359) in view of Lee (U.S. Patent No.: 6,563,803) and further in view of Shennib (U.S. Patent No.: 5,197,332).

Regarding claim 1, Park teaches a method of processing a far-end signal and a near-end signal to produce a final signal, the far-end signal containing speech, the near-end signal containing speech and background noise (see figure 3), the method comprising:

combining the far-end signal (telephone A) with the noise-reduced (read on side tone canceling filter 304) near-end signal (telephone B) to create a combined (sum 303) signal (see figure 3, far-end signal at output amplifier 302, side tone canceling filter 304, summer 303, col.3, ln.25-67), and

amplifying the combined signal by the amplification gain to create the final signal (see figure 3, amplifier 306, col.3, ln.25-67).

It should be noticed that Park fails to teach removing a portion of the background noise from the near-end signal to create a noise-reduced near-end signal. However, Lee teaches such feature (see figure 2, near-end speech $V(n)$, HPF 206 remove the background noise, col.4, ln.17-37).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Lee into view of Park in order to reduce the acoustic echo in communication system as suggested by Lee at column 2, lines 58-67.

Park and Lee, in combination, fails to teach amplification gain based upon the near-end signal using a fitting formula for correction of hearing loss. However, Shennib teaches such features (see figure 4, col.3, ln.52-67, col.10, ln.1-10).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Shennib, into view of Park and Lee in order to reduce the acoustic echo in communication system as suggested by Lee at column 2, lines 58-67.

Regarding claim 5-9, Shennib further teaches the NAL-NL1 protocol. Shennib does not teach the Fig 6 protocol, the Cambridge protocol, the Independent Hearing Aid Fitting Forum protocol, and the Desired Sensation Level input/output protocol. However, choosing different type protocol as claimed would not involve any inventive feature since it is just a matter of selecting the type of protocol for a purpose of changing the operation of the amplification gain.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the fitting formula of Shennib by applying the use of different type of protocol in order to meet the characteristic of particular frequency band.

Regarding claim 10, Lee further teaches the method wherein the act of removing a portion of the background noise from the near-end signal includes filtering the near-end signal with a high-pass filter (see figure 2, HPF 206, col.4, ln.30-38).

Regarding claim 11, Lee further teaches the method wherein the act of removing a portion of the background noise from the near-end signal includes filtering

the near-end signal with a high-pass filter and suppression of the DC component of the near-end signal (see figure 2, HPF 206, col.4, ln.30-38, col.7, ln.40-56).

Regarding claim 12, Lee further teaches the method wherein the act of removing a portion of the background noise from the near-end signal includes removing a portion of the background noise via the spectral subtraction technique (see col.4, ln.30-56).

Regarding claims 26 and 29, Shennib further teaches a program storage device containing computer readable instructions that when executed by a digital signal processor perform the method of claim 1 (see col.3, ln.33-50).

Regarding claim 30, Lee further teaches the telephone wherein the telephone is a cellular telephone (see col.2, ln.60-65).

4. Claims 2-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Park (U.S. Patent No.: 6,594,359) in view of Lee (U.S. Patent No.: 6,563,803) and further in view of Shennib (U.S. Patent No.: 5,197,332) as applied to claim 1 above, and further in view of Cornelisse Pub. No.: US 2002/0076072).

Regarding claim 2, Park, Lee, and Shennib, in combination, fails to teach the method wherein the act of determining the amplification gain includes determining the masking level (i.e., the sound pressure level) of the near-end signal. However, Cornelisse teaches such features (see col.2, [0027]).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Cornelisse, into view of

Park, Lee, and Shennib in order to reduce the acoustic echo in communication system as suggested by Lee at column 2, lines 58-67.

Regarding claim 3, Cornelisse further teaches the method wherein the act of determining the amplification gain includes determining the sound pressure level (energy signal) of the near-end signal (see col.2, [0027], col.6, [0060]).

Regarding claim 4, Cornelisse further teaches the method wherein the act of determining the amplification gain includes determining the sound pressure level above the threshold of hearing audibility (see col.2, [0030]).

Allowable Subject Matter

5. Claims 13-25, 27-28, 31-42, and 46 are allowed.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. In order to expedite the prosecution of this application, the applicants are also requested to consider the following references. Although Kawahara et al. (U.S. Patent No. 5,859,907), Feltstrom et al. (U.S. Pub. No. 2002/0090078), Williams (U.S. Patent No. 4,965,822), and Kosanovic et al. (U.S. Pub. No. 2003/0092473) are not applied into this Office Action; they are also called to Applicants attention. They may be used in future Office Action(s).

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Tuan A. Pham** whose telephone number is

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(571) 272-8097. The examiner can normally be reached on Monday through Friday,
8:00 AM-5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's
supervisor, Mr. Curtis Kuntz can be reached on (571) 272-7499 and

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Art Unit 2643
July 5, 2005
Examiner

Tuan Pham


CURTIS KUNTZ
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600